An Essay
on
The morbid appearances
observed after death
in the
Yellow-fever

By Edward Lowber
of Philadelphia,
Honorary member of the
Philadelphia Medical Society

A. D. 1807.

repea
differe
subje
offer
confin
aspe
discase
sicca
have
given
on dig
of the
been
is ne
hace,

On ou

Introduction.

The disease of yellow fever has been so repeatedly investigated by Physicians in different parts of the world, that, on this subject, if the Essay embraced it, I could offer nothing new or interesting. I shall confine myself exclusively to the morbid appearances observed after death in this disease. On this part of the subject Physicians have done much less than could have been desired. It is true they have given the morbid appearances, as observed on different occasions, in several parts of the Continent; but their accounts have been so often contradictory, that it is very probable, we have sometimes had, for those of the yellow fever, the morbid appearances of a very different

disear
more
take
ances.
fewer,
ent h
a sh
tions
Prevai
Philad
get co
assiru
entirely
in the
Therap
examin
a dise
detail
ident

disease. But that this may be the more correctly judged of, I shall first take a brief view of the morbid appearances, as observed after death in the Yellow fever, by several Physicians in different parts of the world, & then give a short detail of twenty one dissections which were made during the prevalence of the Yellow-fever at Philadelphia in 1805. I have to regret circumstances compelled me, to examine so partially, & in some instances entirely to overlook many of the viscera in these dissections. The Contents of the Thorax, & the Brain, were sometimes examined; but seldom presented a diseased appearance. After having detailed the Dissections I shall give a short account of the Black-vomit-

the fir
those a
his diff
in a le
following
was gen
concaun
the gal
or conv
a black
bruised
from th
dunaus
a knife
is a pr

A brief view of the morbid appearances observed after death in Yellow-fever in different parts of the world.

Dr. Mitchele, of Virginia, is among the first who examined the bodies of those dead of the Yellow fever. He made his dissections in the years 1741 & 2; of which, in a letter to Governor Colden, he gives the following account. The Liver, he says, was generally found turgid & plump, & its concave surface of a deep black colour, round the Gall-bladder seeming to be mortified or corrupted. The Gall-bladder contained a black ropy atrabilis which resembled bruised, or mortified blood, evacuated from the mortified parts of the Liver surrounding. It would, however, stain a knife, or probe, thrust into it, which is a proof of its origin. The stomach

had
peritor
posterio
taken
the bl
the ga
which
than i

upon
same di
found,
several

and da
not only
but fou
vessels
from w
clinable

had its villaus, & in one instance, its peritoneal coat inflamed. It contained nothing but a small quantity of drink, taken just before death, and some of the black cholera, resembling that in the gall-bladder, floating upon it, which was of a blacker colour here, than in the gall-bladder itself.

Upon inspecting the viscera in this same disease, Dr. Lining of Charleston, found, on the inside of the stomach, several carbuncles, or gangrenous spots, and says, that in all he examined, he not only observed the same appearance, but found the blood very fluid, & the vessels of the viscera much distended, from whence, he says, he was very inclinable to think when the disease was

not co

about

was a

to the

the pe

the Ge

says. "

die of

Salt-b

and fe

and th

passing

Martiss

mans c

of the

In

not conquered in its first stadium, that about the termination of the fever there was a metastasis of the morbid matter to the viscera.

Dr. Hillary in his observations on the putrid bilious fever, commonly called the yellow fever of the West-India Islands, says, "upon opening the bodies of those who die of this disease, we generally find the Gall-bladder, and biliary ducts, turgid and filled with a putrid blackish bile, and the Liver, and stomach, and adjoining parts, full of livid, blackish mortified spots, and sometimes gangrenous in those, as also several other parts of the body.

In several bodies examined by

Dr. Ja
vica
tation
of the
early s
and w
of the
rangem
form of
the bra
tendon
lar ins
flamed
much
or incl
actuac
which
point,

Dr. Jackson, the morbid appearances varied in different cases. When the irritation had been great, and the reaction of the vascular system violent, in the early stage of the disease, the liver, brain, and very frequently the inner surface of the stomach, exhibited marks of derangement. In what is called the first form of the yellow fever, the vessels of the brain were frequently found distended with blood, and in some particular instances, its membranes were inflamed. The inner surface of the stomach often exhibited large spots, or circles of a bright red, resembling actual inflammation, in the center of which were frequently seen small points, like beginning gangrene. The

villou
separ
separ
stomac
were
were g
ducts
instan
and de
blood,
The ur
contra
were b
urine
Th
Vol. 2.
count
Warren
of the
In stren

villous was sometimes in the act of ~~the~~ separating, and in some places, actually separated from the nervous coat of the stomach. The appearances of the liver were various. In som instances its vessels were greatly distended, and the biliary ducts preternaturally enlarged. In other instances it was uncommonly large, black and distended, as if suffocated with blood, and its membranes were ruptured. The urinary bladder was often small & contracted, and on its internal surface were bloody spots. It seldom contained urine.

In the Medical Repository of N.Y. Vol. 2. p. 249, we have an interesting account of three dissections made by Drs Warren and Rand, during the prevalence of the yellow fever at Boston in 1798. In their first dissection they found the

storm
but
natu
great
consi
or ter
to th
of the
was
one o
betw

D
the
malc
buildi
tions
case,
the
In the

stomach with every mark of inflammation; but in the second and third it was nearly natural. In every instance the Liver was greatly inflamed, and the Lungs very considerably diseased. In one case eight or ten ounces of blood were effused into the cavity of the Thorax. The brain of the second subject they examined was greatly distended with blood, and one or two ounces of serum were effused between the dura and pia mater.

Dr. Chisholm in the first volume of the second edition of his work on the malignant pestilential fever, p. 183, has published an account of several dissections made by himself and others. In every case, which came under his own notice, the Liver was very considerably diseased. In the first case, which, he says, resembled

alt
than
comm
appr
flacc
& mac
bile-
flam
the d
The d
a line
tained
coat,
accou
observ
on in

all the rest, the liver had shrunk to less than one half its natural size, was uncommonly flaccid, and of a colour nearly approaching a buff: the Gall-bladder was flaccid and greyish, and contained a small quantity of very dark coloured ropy bile - The Intestines were inflated, inflamed, and sphacelated, particularly the duodenum a little beyond the Pylorus The Lungs were highly inflamed, and of a lively texture and hue - The bladder contained near three quarts of urine, and its coats were much thickened. From this account Dr. Chisholm appears to have observed the stomach diseased in no one instance.

The following Dissections were made at the City Hospital during the prevalence of the Yellow-fever at Philadelphia in 1805.

Dissections.

A Child, six years of age, was the subject of the first examination. In addition to the usual symptoms of yellow fever, this case was attended with constant stupor. Upon opening the body the following appearances were observed: The stomach was inflamed in one or two spots, and contained a considerable quantity of black, but not very fluid matter. The discharge in this instance as well, perhaps, as in every other, reduced the inflammation of the stomach, which before death, in all probability, was very considerable. The Liver, and all its appendages were natural. The Bile and Black vomit were compared; but had not the least resemblance. The Brain, together with its ventricles, were perfectly natural

An
pen
like

you
cont
rod
vom
little
phag
a mar
worm
The in
remar
of the
fibres
blaine
ring

An intus-susceptio existed in two portions of the small Intestines, which, like the Stomach, were inflamed.

Dissection 2.

Upon opening the abdomen of a young man, the stomach was found contracted, and its internal coat of a reddish brown colour. It contained black vomit, which, in its odour, was not a little offensive. In cutting thro' the Oesophagus, in order to remove the stomach, a worm was divided. This appearance of worms was by no means uncommon. The internal coat of the stomach was remarkably corrugated; in consequence of the great contraction of its muscular fibres. The Patient, however, never once complained of any thing like spasm, nor, during his indisposition, never once vomited

was f
In som
the app
as wel
quant
the Fre
black,
great g
contai
in ev

Ov
J. F. c
Symptom
In its f
inflam
treated

Dissection 3.

In the third dissection the stomach was found much inflamed, and distended. In some parts of it the villous coat had the appearance of ulceration. The Intestines, as well as the stomach, contained large quantities of black matter. The colour of the Intestines, which was uncommonly black, I expect proceeded from the great quantity of black matter they contained. The Liver was yellow, but in every other respect natural.

Dissection 4.

Fourteen days previous to his death J. H. was attacked with the usual symptoms of the prevailing Epidemick. In its first stage, the disease was highly inflammatory, and was accordingly treated with depleting remedies, of which

blood-
ging-
was fo
having
The M
and be
natura
altho'
any aff
the blo
diseases

The
nothing
Thoran
the pure
tained
The co
very d

blood-letting was much inferior to purging - upon inspection, the Stomach was found without inflammation, but having its coats, in some degree, thickened. The Intestines were loaded with worms and black matter. The Liver was of its natural size; but had a yellow colour. Altho' this Patient never complained of any affection about the region of the Pubis the bladder was found considerably diseased.

Dissection 5.

The Symptoms in this case were nothing uncommon. Upon opening the Thorax the contents were found natural; the pericardium excepted, which contained a small quantity of yellow serum. The contents of the abdomen were in a very different state. The Stomach, near the

cardi
contai
culent
stoma
wider
were i
matter
were n
was co
was o
mou n
any g

In
pearan
toms du
were b
was a
time a
upon

cardia, was considerably inflamed, and contained a large quantity of black flocculent matter. On the internal coat of the stomach there was a circumscribed spot evidently gangrenous. The jejunum & Ileum were inflamed, and contained black matter. The Liver, Gall-bladder, and bile were natural. The urinary bladder was considerably distended. The Scrotum was observed to have advanced much more rapidly towards putrefaction than any of the surrounding parts.

Dissection 6.

In this case, altho' the morbid appearances indicate great disease, the symptoms during the indisposition of the Patient were by no means violent. The Patient was a man, aged thirty, and died a short time after his admission into the Hospital. Upon opening the abdomen the stomach

was
tense
now,
of bl
culi
coagu
gue,
rum a
The S
inflam
tained
The Col
tirely
consid
Yellow
natura
ratio-
une t
tained
man ha

was found of the natural size, but extensively inflamed, in one spot gangrenous, and containing a large quantity of black flocculent matter — These flocculi had much the appearance of ~~blood~~ coagulated blood; differing in some degree, perhaps, in consequence of having remained for some time in the stomach. The small intestines were very considerably inflamed, and the jejunum and Ilium contained a large quantity of black matter. The Colon was more natural; tho' not entirely free from disease. The Liver was considerably enlarged, indurated, and yellow. The Gall bladder was larger than natural. The Pancreas was also indurated. The coats of the urinary bladder were thickened, and the abdomen contained a quantity of yellow serum. As this man had been extremely intemperate in

the u
doubt
the d
to the

J. C
pitac
yellow
the dir
During
of sup
ted u
Brain
especi
diseases
inflam
black v
inflam
The D

the use of spirituous liquor, there is no doubt but that the morbid appearances of the Liver and Pancreas should be referred to that unhappy practice.

Dissection 7

J. C was admitted into the City Hospital with the usual symptoms of the yellow fever, which, on the fifth day of the disease, terminated his existence During his indisposition, he complained of suppression of urine, and was affected with considerable stupor. The Brain was examined, but contrary to expectation, found not in the least diseased. The Stomach was slightly inflamed, and contained some of the black vomit. The Small intestines were inflamed, and contained bloody mucus The Liver was natural in its size and

testim
The u
size i
some

Th
two co
Brain
no resp
stone
contai
of one
The L
was m
and it
from th
one of
was
its ca

texture; but of a slightly yellow colour. The urinary bladder was of its natural size; but considerably inflamed, and, in some parts, gangrenous.

Dissections 8 and 9.

The appearances after death in these two cases were very similar. In one the Brain was examined, but deviated, in no respect, from the natural state. The Stomach of both was inflamed and contained black matter. The Intestines of one, were natural; of the other, inflamed. The Liver, its yellow colour excepted, was natural. The Gall-bladder was small, and its bile very different in appearance from the black vomit in the Stomach. In one of the cases the urinary bladder was contracted to so small a size its cavity was nearly obliterated

two
the ff
or the
on one
illness
him
made
tempt
the
bitter
measu
had c
have
opinin
consid
black
nearly

Dissections 10 and 11.

The appearances after death in these two dissections were very similar; but the symptoms during the indisposition of the Patients, were as dissimilar. In one of them, during the whole of his illness, it was impossible to induce him to take drink, nourishment, or medicine of any kind - And if an attempt were made to force them on him the Nauseu was in danger of being bitten - The symptoms were, in some measure, evidently hydrophobic, & had circumstances permitted we should have examined the Trachea - Upon opening the bodies I found the stomachs considerably inflamed, and containing black vomit - The Intestines were nearly natural - In one of the cases

the D
its co
The B
nature

In t
almost
flamen
in the
Interlo
had b
nearly
the L
concav
the sp
contrac
which
quant

the Liver was natural, in the other, its concave surface was of a blue colour. The Brain, which was examined, was natural.

Dissections 12, 13 and 14

In these three cases the stomach was almost the only organ affected. The inflammation in one case was great; but in the other two, less considerable. The Intestines, except in one case, where it had been pretty considerable, were nearly natural. In two of the cases the Liver was natural; in the other its concave surface was nearly the colour of the spleen. The Gall bladder was much contracted, as also the urinary bladder, which, in one case, contained a small quantity of yellow fluid.

The
fourth
the st
to inin
endem
contem
and th
The Ill
very p

Mr o
on a s
hypopto
an itter
his ill

On ex
funcly
after o
His ey
tenance

discas

Dissection 15.

This case terminated in death on the fourth day. upon examination I found the stomach slightly inflamed, and containing a large quantity of black flacculent matter. The Intestines and their contents were natural. The Liver was natural and the Gall-bladder considerably distended. The Blood in the ventricles of the Heart was very fluid.

Dissection 16.

M. S., the subject of the 16th dissection, in a short time after being attacked with symptoms of the malignant fever, was admitted into the City Hospital. During his illness in the Hospital he voided no urine; but perspired most profusely. This was particularly the case after coming out of the warm bath. His eyes were inflamed, and his countenance indicated a most malignant disease. The viscera upon examination

exhibe
The bl
its inte
The inf
usual,
whole
Its con
Gall-bl
Kidney
was co
contain

C. M.
with fy
ning th
Intermit
the acce
by fever,
prescribed
the remo
thing do

exhibited the following appearances: The stomach was highly inflamed & its internal coat remarkably corrugated. The inflammation was not, as is most usual, in spots; but it occupied the whole of the internal coat of the stomach. The contents were natural. The liver, gall-bladder, & bile were natural. The Kidneys were also natural. The Bladder was contracted to a very small size, & contained not more than a dram of urine.

Dissection 17.

C. M. was admitted into the City Hospital with symptoms of the yellow fever assuming the type of an Intermittent. The Intermittent was so well marked, and the accession of the chilly fit succeeded by fever, so regular, that the Bark was prescribed without hesitation. For a time the remedy appeared to have done every thing desired. At length, however, the

disease
and s
and d
found
ra in
natura
portion
was re
contain
two ounces
was a
dollar
large g
was ma
tracted
of vice
also m

The
a sailo
anthrac

disease assumed its most common gait, and suddenly terminated in black vomit and death. Upon opening the Thorax I found the left lung adhering to the Pleura in every direction. The right lung was natural. The Pericardium contained a portion of yellow serum. The stomach was very considerably distended, and contained, upon admeasurement, thirty two ounces of Black-vomit. Near the Pylorus was a gangrenous spot, the size of a half dollar piece. The Intestines contained a large quantity of black matter. The Liver was natural. The Gall-bladder was contracted and contained a small quantity of viscid bile. The urinary bladder was also much contracted.

Dissection 18.

The subject of this dissection was a Sailor admitted into the Hospital without pulse. The contents of the Thorax

were
inflam
lower
penet
inflam
Liver
of a b
natur
tracted

The
three
mentio
The Sto
viscera
natural
consider

were natural. The stomach was slightly inflamed, and contained a chocolate coloured matter. The Intestines, and their peritoneal coat (in a small degree) were inflamed. The superior surface of the Liver appeared natural, its inferior of a bluish colour. The Kidneys were natural; but the urinary bladder contracted to a very small size.

Dissections 19, 20 & 21.

The appearances observed in these three cases were very similar to those mentioned in the preceding dissection. The Stomach and Intestines were the viscera most diseased. The Liver was natural, and the urinary bladder considerably contracted.

the su
in the
give a

The
the ab
black,
subst
porter
vicid
when
brown
change
black a
strong
stand
place of
a fluid
of green

Of the Black vomit

Having so frequently mentioned the morbid appearance of black vomit in the foregoing Dissections I shall now give a short description of it.

The Black vomit, when ejected from the stomach in small quantities, is not black, but consists of a dark brown flaky substance, resembling the grounds of spirits, hardly; suspended in a fluid, lightly viscid; becoming nearly transparent, when at rest; by the subsiding of the brown particles, when the vomit is discharged in large quantities, it is of a black colour, resembling the grounds of strong coffee, slightly fatid: after standing a few hours, a deposition takes place of a black flaky substance, from a fluid similar in colour, to an infusion of green tea, moderately viscid; having

a very
nation
particu
in sh
not a
the v
may
gen in
than
is so
substa
the fa
and
moral
vessel,
corked
rather
with

Th
the m
remar

a very faint sweetish animal odour, and rather a saccharine taste. The flaky particles, which precipitate are various in sizes, and of a very irregular figure, are not unfrequently mixed with pieces of the villous coat of the stomach, which may be distinguished by their being longer in subsiding to the bottom of the vessel, than the true flaky substance: there is some disproportion between the flaky substance and the yellow colourless fluid the former is generally greater in quantity and when separated, is readily incorporated by the least agitation of the vessel, and when kept in a vial well corked, for eight or ten days, assumes rather an agreeable odour, and is extremely brisk like fermenting beer.

Having given this short account of the nature of the blackvomit, it now remains to ascertain by what means it

is pr

in th

time

believ

secre

with

Dr. O

he sa

was a

as ha

Linn

of Jo

The c

tlemen

follo

1. Of

thinly

colou

of th

same

is produced.

When the yellow fever first appeared in this country, and for a considerable time after, Physicians almost uniformly believed the black vomit a vitiated secretion of bile. This opinion prevailed with many till the year 1800 when Dr. Physick published a paper, in which he satisfactorily proved the black vomit was a discharge from the stomach, and not, as had been supposed, a secretion from the liver. About this same time Dr. Saunderson of Tortola advanced the same opinion. The correctness of the opinion these two gentlemen entertained will appear from the following arguments:

1. If the darkest coloured bile be spread thinly over a white surface, it loses the black colour it had in its accumulated state. If the black vomit be treated in the same way it will retain its black or

dark

2. Th
comm
is, in
has b
amon
in th
taine

3. Th
any f
mixtu
mach

4. Ih
black
whose
tracte
enable
instan
parent
colour
taine
descri

dark brown appearance.

2. The bile in the Gall-bladder has its common bitter taste; but the black vomit is, in general, nearly insipid. This fact has been ascertained by many persons & among others the late Dr. S. Cooper. Patients in the act of vomiting have often ascertained it.

3. The Black vomit differs materially from any fluid that can be produced by a mixture of bile with the fluids of the Stomach or Intestines.

4. I have seen more than thirty ounces of black vomit in the stomach of a subject whose Gall-bladder was small and contracted, and contained a very inconsiderable portion of viscid bile. In other instances the Gall-bladder has contained a transparent and colourless, and sometimes a purulent coloured fluid, while the stomach contained black vomit of the nature above described.

Finis.